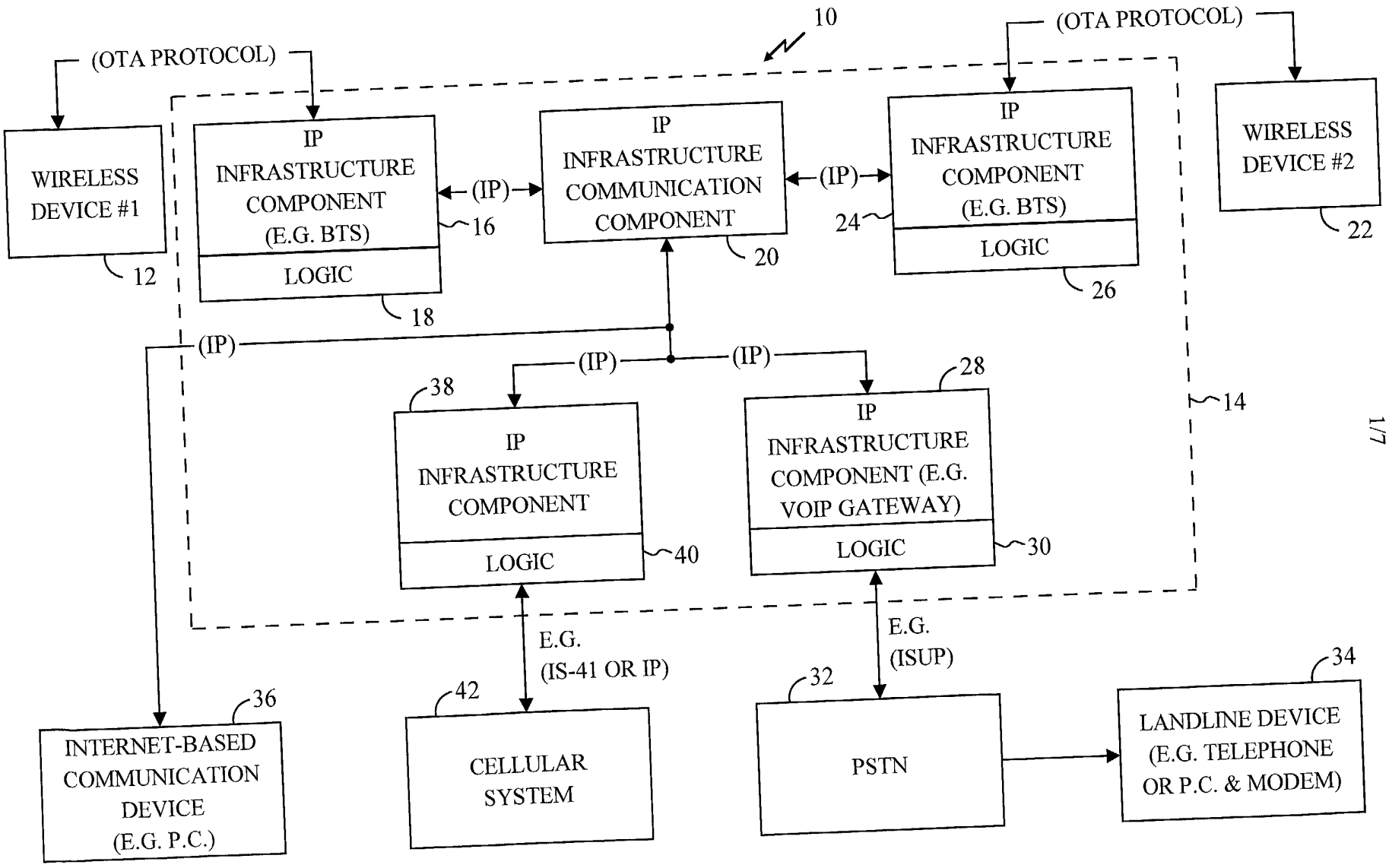
10
(OTA PROTOCOL)
(OTA PROTOCOL)
WIRELESS DEVICE #1
12
IP INFRASTRUCTURE COMPONENT (E.G. BTS)
LOGIC
16
18
(IP)
IP INFRASTRUCTURE COMMUNICATION COMPONENT
20
(IP)
IP INFRASTRUCTURE COMPONENT (E.G. BTS)
LOGIC
24
26
WIRELESS DEVICE #2
22
14
(IP)
(IP)
(IP)
38
IP INFRASTRUCTURE COMPONENT
LOGIC
40
28
IP INFRASTRUCTURE COMPONENT (E.G. VOIP GATEWAY)
LOGIC
30
E.G. (IS-41 OR IP)
E.G. (ISUP)
36
INTERNET-BASED COMMUNICATION DEVICE (E.G. P.C.)
42
CELLULAR SYSTEM
32
PSTN
34
LANDLINE DEVICE (E.G. TELEPHONE OR P.C. & MODEM)

FIG. 1

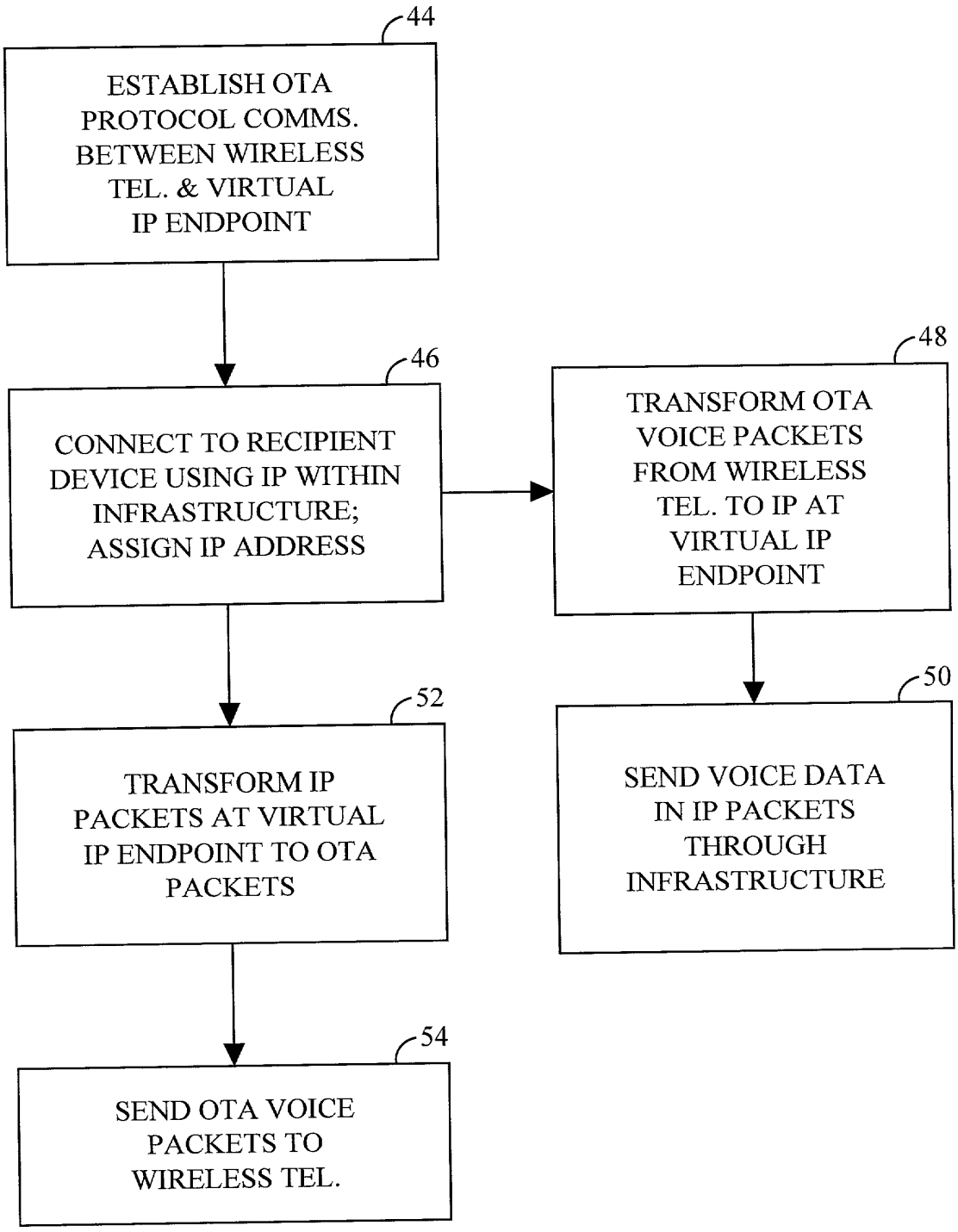
44
ESTABLISH OTA PROTOCOL COMMS. BETWEEN WIRELESS TEL. & VIRTUAL IP ENDPOINT
46
CONNECT TO RECIPIENT DEVICE USING IP WITHIN INFRASTRUCTURE; ASSIGN IP ADDRESS
48
TRANSFORM OTA VOICE PACKETS FROM WIRELESS TEL. TO IP AT VIRTUAL IP ENDPOINT
52
TRANSFORM IP PACKETS AT VIRTUAL IP ENDPOINT TO OTA PACKETS
50
SEND VOICE DATA IN IP PACKETS THROUGH INFRASTRUCTURE
54
SEND OTA VOICE PACKETS TO WIRELESS TEL.

FIG. 2

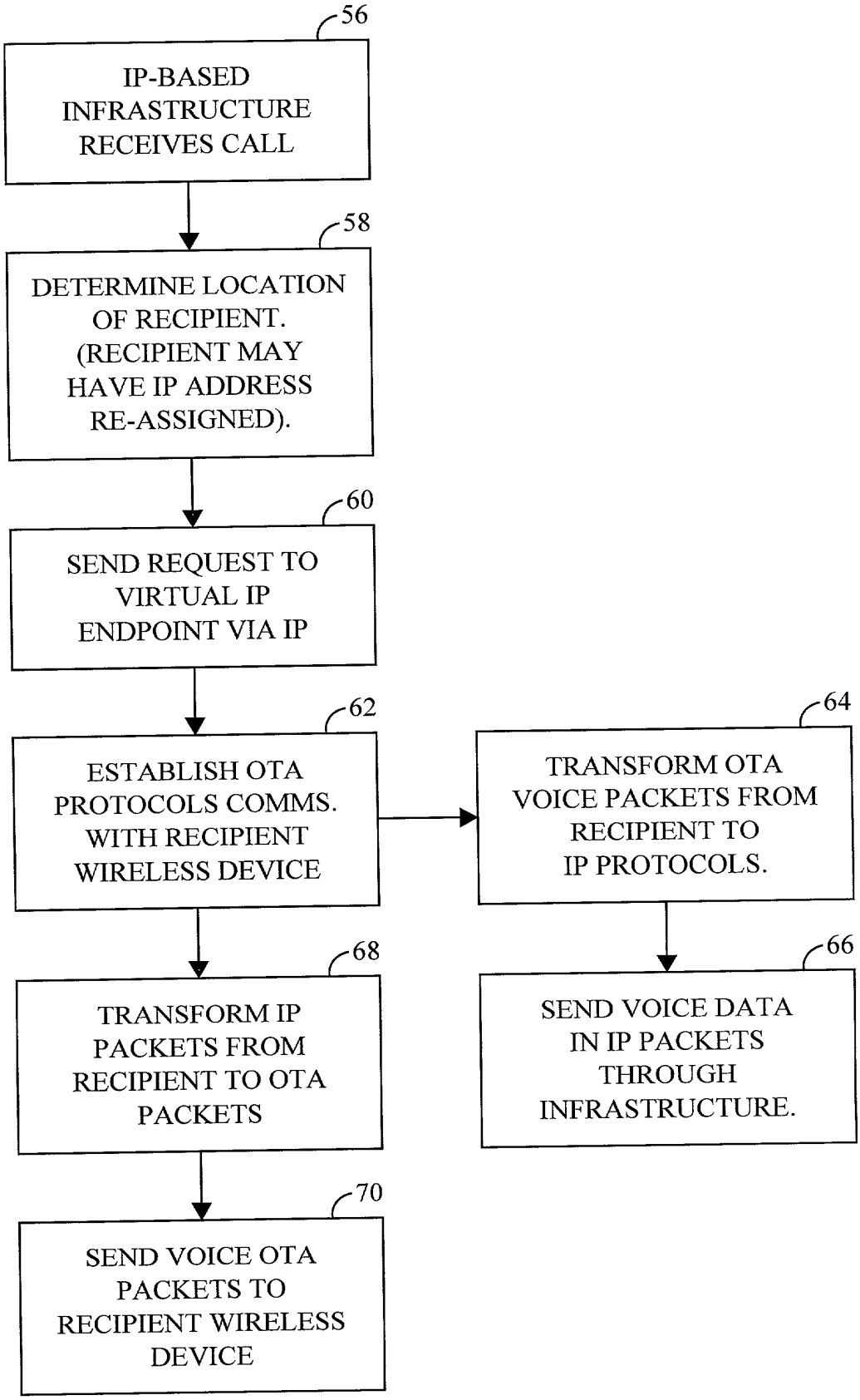
56
IP-BASED INFRASTRUCTURE RECEIVES CALL
58
DETERMINE LOCATION OF RECIPIENT. (RECIPIENT MAY HAVE IP ADDRESS RE-ASSIGNED).
60
SEND REQUEST TO VIRTUAL IP ENDPOINT VIA IP
62
ESTABLISH OTA PROTOCOLS COMMS. WITH RECIPIENT WIRELESS DEVICE
64
TRANSFORM OTA VOICE PACKETS FROM RECIPIENT TO IP PROTOCOLS.
66
SEND VOICE DATA IN IP PACKETS THROUGH INFRASTRUCTURE.
68
TRANSFORM IP PACKETS FROM RECIPIENT TO OTA PACKETS
70
SEND VOICE OTA PACKETS TO RECIPIENT WIRELESS DEVICE

FIG. 3

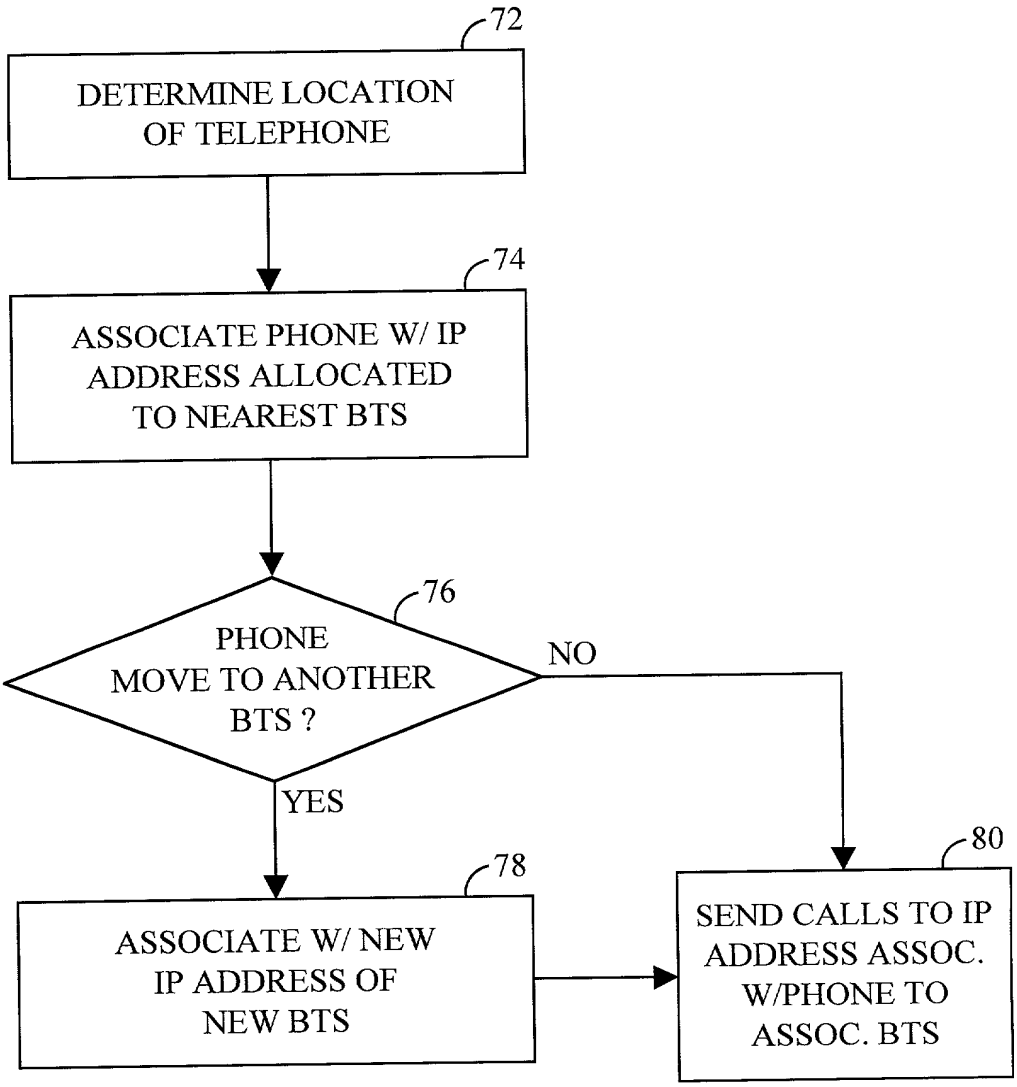
72
DETERMINE LOCATION OF TELEPHONE
74
ASSOCIATE PHONE W/ IP ADDRESS ALLOCATED TO NEAREST BTS
76
PHONE MOVE TO ANOTHER BTS ?
NO
YES
78
ASSOCIATE W/ NEW IP ADDRESS OF NEW BTS
80
SEND CALLS TO IP ADDRESS ASSOC. W/PHONE TO ASSOC. BTS

FIG. 4

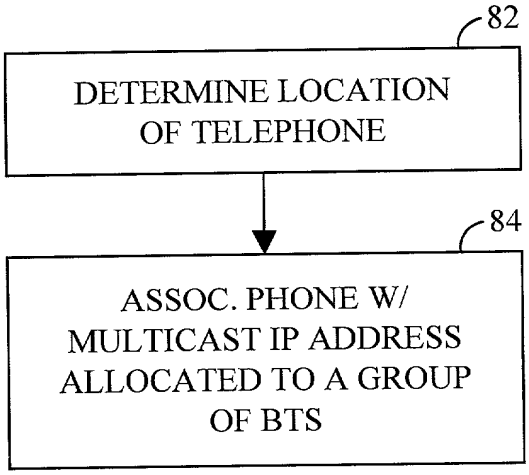
82
DETERMINE LOCATION OF TELEPHONE
84
ASSOC. PHONE W/ MULTICAST IP ADDRESS ALLOCATED TO A GROUP OF BTS

FIG. 5

```
REGISTER sip:registrar.qc-pbx.com SIP/2.0                                    100
Via: SIP/2.0/UDP CAP1.qc-pbx.com
To: <sip:8586517777@CAP1.qc-pbx.com>                    104   106   108
From: <sip:8586517777@CAP1.qc-pbx.com>; ESN=74020fff;IMSI_CLASS=0
Proxy-Authorization: CDMA-CAVE=1.0
102          AUTHR="xxxxxxxx",
             RANDC="yyyyyyyy",                                               110
112          COUNT="zzzzzzzz"
X-CDMA-ACHP: MOB_TERM=1;SCM=106;PM=0;ENCRYPTION_SUPPORTED=0;
PACA_SUPPORTED=0
Call-id:90@qc-pbx.com
CSeq: 1 REGISTER
Contact: <sip:8586517777@CAP1.qc-pbx.com>
Content-Length:0
```

FIG. 6

```
                                                                             200
INVITE sip:8586510000@qc-pbx.com SIP/2.0
Via: SIP/2.0/UDP CAP1.qc-pbx.com
To: <sip:8586510000@qc-pbx.com>                  206          208
From: <sip:8586517777@CAP1.qc-pbx.com>; ESN=74020fff;IMSI_CLASS=0
Call-id:100@qc-pbx.com                                  204
CSeq: 1 INVITE                                  202
X-CDMA-ACHP: MOB_TERM=1;SCM=106;PM=0;ENCRYPTION_SUPPORTED=0;
PACA_SUPPORTED=0                                                    212
Contact: <sip:8586517777@CAP1.qc-pbx.com>
Content-Type: application/sdp
Content-Length:128


v=0
0=8586514321 112233 445566 IN IP4 8586517777@CAP1.qc-pbx.com
s=-
c=IN IP4 10.11.12.1
t=0 0
a=sendrec
```

FIG. 7

IS-95B ACCESS CHANNEL PARAMETER DETAILS

IS95B ACCESS CHANNEL PARAMETER	DESCRIPTION	SIP FIELD
MSID	MOBILE STATION IDENTIFICATION NUMBER OR COMBINATION OF NUMBERS USED TO UNIQUELY IDENTIFY THE MOBILE TO THE INFRASTRUCTURE. THE MSID CONSISTS OF THE MOBILE ESN (ELECTRONIC SERIAL NUMBER), IMSI (INTERNATIONAL MOBILE STATION IDENTIFY), IMSI AND ESN, OR TMSI (TEMPORARY MOBILE STATION IDENTIFY).	▪ FROM HEADER ▪ CONTACT HEADER ▪ X-CDMA HEADER
AUTHR	AUTHENTICATION RESPONSE AN 18-BIT OUTPUT OF THE CDMA AUTHENTICATION ALGORITHM, USED TO VALIDATE MOBILE STATION ORIGINATIONS, REGISTRATIONS AND TERMINATIONS.	▪ 407 PROXY AUTHENTICATE EXTENSION
RANDC	RANDC THE 6 MOST SIGNIFICANT BITS OF RAND, THE RANDOM NUMBER ISSUED BY THE INFRASTRUCTURE FOR INPUT TO THE CDMA AUTHENTICATION ALGORITHM.	▪ 407 PROXY AUTHENTICATE EXTENSION
COUNT	CALL HISTORY PARAMETER COUNTER MAINTAINED BY THE MOBILE AND THE AUTHENTICATION CENTER OF THE NUMBER OF MOBILE CALL ATTEMPTS. USED TO ASSIST IN IDENTIFYING CLONE MOBILE STATIONS.	▪ 407 PROXY AUTHENTICATE EXTENSION
IMSI_CLASS	IMSI CLASS USED TO DENOTE WHAT COMPONENTS ARE USED TO IDENTIFY THE MOBILE STATION TO THE INFRASTRUCTURE	▪ FROM HEADER ▪ CONTACT HEADER ▪ X-CDMA HEADER
MOB_TERM	MOBILE STATION TERMINATION INDICATOR SET TO '1' IF THE MOBILE CAN TERMINATE CALLS IN ITS CURRENT ROAMING STATUS	▪ X-CDMA HEADER
MOB_P_REV	MOBILE STATION PROTOCOL REVISION USED TO DETERMINE IF THE PROTOCOL REVISIONS SUPPORTED BY THE MOBILE STATION AND THE INFRASTRUCTURE ARE COMPATIBLE.	▪ X-CDMA HEADER

FIG. 8

IS95B ACCESS CHANNEL PARAMETER	DESCRIPTION	SIP FIELD
SPECIAL_SERVICE	SPECIAL SERVICE OPTION INDICATOR USED BY THE MOBILE TO INDICATE A REQUEST FOR A SERVICE OPTION OTHER THAN THE DEFAULT SERVICE OPTION	▪ SDP "m" (MEDIA INFORMATION) HEADER FIELD. ▪ MAY ALSO BE PART OF THE SDP "a" (MEDIA ATTRIBUTE) HEADER FIELD.
SERVICE_OPTION	SERVICE OPTION INDICATOR USED BY THE MOBILE STATION TO INDICATE A REQUEST FOR A SPECIFIC SERVICE OPTION	▪ SDP "m" (MEDIA INFORMATION) HEADER FIELD. ▪ MAY ALSO BE PART OF THE SDP "a" (MEDIA ATTRIBUTE) HEADER FIELD.
PM	PRIVACY MODE INDICATOR USED TO INDICATE OVER-THE-AIR PRIVACY MODE.	▪ X-CDMA HEADER
CHARI	DIALED DIGIT OR CHARACTER INDICATES WHAT FORMAT DIALED DIGITS ARE SENT, EITHER DMTF OR ASCII	▪ TO HEADER
PACA	PRIORITY ACCESS AND CHANNEL ASSIGNMENT A PRIORITY MOBILE-ORIGINATED CALL FOR WHICH THERE IS NO OTA RESOURCE AVAILABLE WHEN THE CALL IS ORIGINATED; WHICH HAS BEEN QUEUED FOR PRIORITY ACCESS CHANNEL ASSIGNMENT.	▪ X-CDMA HEADER
ENCRYPTION_SUPPORTED	INDICATES SUPPORT FOR OTA ENCRYPTION OF CDMA SIGNALING.	▪ X-CDMA HEADER

FIG. 8 (con't.)